# PATENT SPECIFICATION

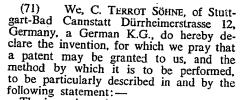
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#### DRAWINGS ATTACHED

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### (54) CIRCULAR KNITTING MACHINES



The invention relates to a circular knitting 10 machine, in which a plurality of selecting mechanisms and knitting positions cooperate to knit a pattern. Hitherto, the needles have been respectively controlled by displaceable elements, for example jacks, which had to be returned to the normal position by a continually operable switching mechanism. It has therefore been necessary to develop apparatus in which these continual switching movements may be dispensed with.

In accordance with the invention there is provided a circular knitting machine having mounted in the cylinder a series of selector jacks, each comprising a bifurcated end receiving one end of a needle activating swinging jack, some of the series having a butt projecting upwardly in the longitudinal direc-tion of the selector jacks and some of the series having a butt projecting downwardly in the longitudinal direction of the selector jacks there being provided grippers one on the upper side and one on the lower side of the respective butts, for resetting the selector jack.

Each gripper may be actuated by an elec-35 trie, hydraulic, or pneumatic motor.

One construction according to the invention is diagrammatically illustrated, by way of example, in Figures 1 and 2 of the accompanying drawings, is which:—

Figure 1 is a diagram of the cams; and Figure 2 is a diagram showing the interrelation between the selecting mechanism and the needles.

In the illustrated construction, patterns of 45 single and multiple width may be produced. Referring to the drawings, needles 7

rotate together with a cylinder (not shown), lowering and raising cams being mounted

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in a machine frame (also not shown).

In the drawings, reference numerals of 50 individual machine elements are denoted by respective letters and two systems a and bare referred to; although it will be understood that there may be more.

From respective selector drums 1a, 1b, selector bars 2 act upon needle activating swinging jacks 5a and 5b, to which needles 7 are hinged, via selector jacks 3a and 3b, butts 6b and 6a of the needle activating swinging jacks 5a, 5b engaging with raising cams 9b and 10a to effect knitting. The needle activating swinging jacks 5a and 5b are lowered to complete knitting by a lowering cam 11b acting upon butts 8 of the needles 7.

Each needle activating swinging jack is received in a bifurcated end of its associated selector jack.

The paths along which the butts 6a and 6b of the needle activating swinging jacks 5a and 5b and the butts 8 move are indicated in broken lines in Figure 1.

The drawings also show machine elements which are inoperative when knitting double-width patterns. These elements are raising cams 10b and 9a and lowering cams 11a. These elements are required for knitting patterns of a single-width and rendered inoperative when multiple widths are being

The selector jacks 3a and 3b are returned to their initial position at periodic intervals by means of grippers 12a and 12b acting upon projections in the form of butts 4a and 4b on a butt of the selector jacks.

The butts 4a project downwardly in the longitudinal direction of the selector jacks while the butts 4b project upwardly in the longitudinal direction of the selector jacks.

Selector jacks, selector bars and grippers having three or four different configurations would be used for knitting patterns having triple or quadruple width; in which case only every third or fourth of the raising and lowering cams would operate to actuate 95 the needles 7.

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The projections 4a and 4b are adapted to engage the grippers 12a and 12b situated one on the upper and one on the lower side of the butt.

WHAT WE CLAIM IS:—

1. A circular knitting machine having mounted in the cylinder a series of selector jacks, each comprising a bifurcated end receiving one end of a needle activating swing10 ing jack, some of the series having a butt projecting upwardly in the longitudinal direction of the selector jacks and some of the series having a butt projecting downwardly in the longitudinal direction of the selector jacks, there being provided grippers one on the upper side and one on the lower side of the respective butts, for resetting the selector jack.

2. A circular knitting machine accord-

ing to claim 1, or claim 2, in which each gripper is actuated by an electric, hydraulic,

or pneumatic motor.

3. A circular knitting machine according to any of claims 1 or 2, in which there are raising cams capable of raising the needles, there being lowering cams provided for returning the needles, respective raising cams and lowering cams being rendered inoperative upon passing from a single-width pattern to a multiple-width pattern.

4. A circular knitting machine, substantially as hereinbefore described and illustrated in the accompanying drawings.

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COMPLETE SPECIFICATION

1 SHEET

This drawing is a reproduction of the Original on a reduced scale

